

Miniature Carbon Dioxide Sensor for Small Unmanned Aircraft Systems, Phase I

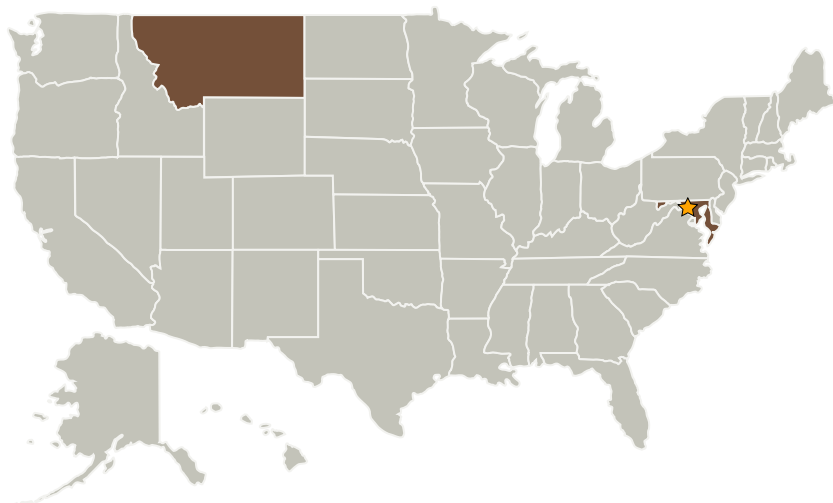
Completed Technology Project (2007 - 2007)



Project Introduction

There is a growing need to develop improved technologies for precise airborne measurements of carbon dioxide, CO₂. CO₂ measurements are of great importance to many areas of research, including climate change, global carbon budgets, and geological research in relation to volcanic activity. At the same time, we are entering a period of time in which Unmanned Aircraft Systems (UAS) are becoming more widely used for atmospheric research. UAS platforms have already proven themselves as a uniquely capable means for making measurements in remote areas and over oceans. However, existing CO₂ measurement technologies are difficult to adapt to or use in the UAS world. This proposal describes a simple and inexpensive sensor for the precise determination of atmospheric CO₂ that will be small enough for flight on small UAS platforms and sounding balloons. Phase I will include the fabrication of a proof-of-concept sensor system, laboratory characterization of the sensor, and culminate in a demonstration of the sensor on a UAS. Phase II will emphasize improving the basic manufacturability of the design, as well as much more extensive laboratory and UAS testing.

Primary U.S. Work Locations and Key Partners



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Table of Contents

Project Introduction	1
Primary U.S. Work Locations and Key Partners	1
Organizational Responsibility	1
Project Management	2
Technology Areas	2

Organizational Responsibility

Responsible Mission Directorate:

Space Technology Mission Directorate (STMD)

Lead Center / Facility:

Goddard Space Flight Center (GSFC)

Responsible Program:

Small Business Innovation Research/Small Business Tech Transfer

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Organizations Performing Work	Role	Type	Location
★Goddard Space Flight Center(GSFC)	Lead Organization	NASA Center	Greenbelt, Maryland
Anasphere, Inc.	Supporting Organization	Industry	Belgrade, Montana

Primary U.S. Work Locations	
Maryland	Montana

Project Management

Program Director:

Jason L Kessler

Program Manager:

Carlos Torrez

Technology Areas

Primary:

- TX06 Human Health, Life Support, and Habitation Systems
 - └ TX06.3 Human Health and Performance
 - └ TX06.3.2 Prevention and Countermeasures